Conclusions VAP occurs in a significant proportion of PICU patients with lower respiratory infection resulting in increased LOS and antibiotic use.

**EVALUATING THE EFFECTS OF AIRWAY PRESSURE RELEASE VENTILATION, A NOVEL MODE OF VENTILATION, IN CHILDREN WITH ACUTE RESPIRATORY FAILURE**

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**Background**
The mortality rate of ARDS in children exceeds 50%. Airway Pressure Release Ventilation (APRV), a lung protective mode of mechanical ventilation, allows renal and hemodynamic stability in adults with acute respiratory distress syndrome (ARDS). This retrospective case review surveys the safety and utility of APRV in children with ARDS between April 2010 and November 2011.

**Methods**
This study was conducted at the Pediatric ICU at Stanford. Children on APRV for less than 24 hours or who were placed on ECMO were excluded. Primary measures, PaO2/FiO2 (P/F) ratio and the Oxygenation Index (OI), were assessed prior to and after APRV initiation. Secondary measures were blood pressure, creatinine, and sedation requirements. A paired t-test was performed comparing parameters over time and a mixed linear model with a random effect was used to test for significant differences over time.

**Results**
P/F ratio and OI significantly improved upon switching to APRV. All of the secondary measures assessed remained stable (data not shown).

**Conclusion**
The rise in P/F ratio and decrease in OI upon switching to APRV indicate an improvement in oxygenation. Stability of cardiac, renal, and sedation parameters further demonstrate the mode’s utility. This retrospective study demonstrates safety and efficacy of APRV in a small population of children with respiratory failure.

**Abstract 995 Figure 1**

Patients with VAP received longer treatment with aminoglycosides compared with patients without VAP (18.42±13.02 vs. 6.25±5.19 days, P<0.01). Moreover, only children with VAP were treated with quinolone. Patients with VAP had also significantly increased length of PICU stay (LOS) and mechanical ventilation (figure 2).

**Abstract 995 Figure 2**

**Abstract 996 Table 1**

<table>
<thead>
<tr>
<th>Respiratory Parameters</th>
<th>-24 hours (baseline)</th>
<th>-2 hours (prior to APRV)</th>
<th>+2 hours (after APRV)</th>
<th>+24 hours (after APRV)</th>
<th>Mean Difference (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PaO2/FiO2</td>
<td>127.19584</td>
<td>111.99251</td>
<td>156.91240</td>
<td>198.98324</td>
<td>28.490173 [3.444559 to 58.514287]</td>
</tr>
<tr>
<td>Oxygenation Index</td>
<td>19.31633</td>
<td>22.85918</td>
<td>22.34526</td>
<td>18.16486</td>
<td>3.5691055 [-3.7849048 to 9.6273488]</td>
</tr>
</tbody>
</table>

**Conclusion**
The rise in P/F ratio and decrease in OI upon switching to APRV indicate an improvement in oxygenation. Stability of cardiac, renal, and sedation parameters further demonstrate the mode’s utility. This retrospective study demonstrates safety and efficacy of APRV in a small population of children with respiratory failure.
**997 VENTILATOR-ASSOCIATED PNEUMONIA (VAP) ON PEDIATRIC INTENSIVE CARE UNIT**

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**Introduction** Ventilator-associated pneumonia (VAP) is a form of nosocomial infections - pneumonia which occurs in patients who are on mechanical ventilation for longer than 48 hours. It is very often complication on intensive unit care.

**Aim** To evaluate prevalence VAP on Pediatric intensive care unit (PICU) and the most common causes. Subjects and methods: From mart 2009 till mart 2011, 42 patients age two months to eight years. Design of study: prospective Patients were divided according to age, gender, time of manifestations VAP, types of microorganisms isolated in cultures.

**Results** From 42 investigated patients 22/42 (52.3%) were females. Patients were divided in the groups according to their age as follows: 0–6 months 9/42 (21.4%), 7–12 months 17/42 (40.4%), 1–3 years 11/42 (24.4%), 4–8 years 5/42 (11.9%) patients. According to time of manifestations VAP: between 48–96 hours of ventilations 14/42 (33.3%) patients, after 96 hours of ventilations 14/42 (33.3%) patients. According to types of microorganisms isolated in cultures: Klebsiella pneumoniae 12/42 (28.5%), Acinetobacter calcoaceticus 7/42 (16.6%), Staphylococcus aureus 4/42 (9.5%), Enterobacter4/42 (9.5%), Stenotrophomonas maltophilia 2/42 (4.7%), unknown 8/42 (19.2%). De-escalation therapy was administered in 30/42 (71.4%) patients. Dual antibiotic therapy was found in 22/42 (52.3%) patients. Mortality was 13/42 (30.9%) patients, in group therapy with deescalation 7/13 (53.8%), whereas in the monotherapy group was 8/13 (61.5%) patients.

**Conclusion** VAP is quite common complication on PICU. Previously taken cultures are very helpful in timely selection antibiotics and successful recovery.

**998 NONINVASIVE POSITIVE PRESSURE VENTILATION IN INFANTS AND CHILDREN WITH ACUTE RESPIRATORY FAILURE**

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**Introduction** To improve the training of medical students in respiratory physiology, we created an interactive cardio-respiratory simulator (SimulResp, figure 1). The objective of our study was to validate the simulator in normal and specific patient conditions.

**Methods** We run SimulResp (version 2012.03.10.01) with several virtual patients characteristics: sex (M/F), age (8 to 18 years old) and weights (10 th, median, 90 th percentiles), atmospheric pressure conditions. respiratory physiology, we created an interactive cardio-respiratory simulator (SimulResp, figure 1). The objective of our study was to validate the simulator in normal and specific patient conditions.

**Results** Blood gases values obtained from SimulResp (figure 1) were within normal range (pH 7.35–7.45, PCO2 35–45 mmHg, PO2 80–100 mmHg). At 4.7 atmospheres, the difference with the published data (ref 1) was less than 10% for all values (figure 2).

Abstract 999 Figure 1 Physiological condition at H4